LOG OF MEETING

DIRECTORATE FOR ENGINEERING SCIENCES

SUBJECT:	Meeting on the development of a standard ignition source for testing mattresses and upholstered furniture
DATE OF MEETING:	June 19, 2002
DATE OF LOG ENTRY:	June 28, 2002
SOURCE OF LOG ENTRY:	Allyson Tenney, ESME
LOCATION:	U.S. Consumer Product Safety Commission (CPSC) Room 410, East West Towers
CPSC ATTENDEES:	See attached attendees list
NON-CPSC ATTENDEES:	See attached attendees list

SUMMARY OF MEETING:

Representatives from the U.S. Consumer Product Safety Commission (CPSC), National Institute of Standards and Technology (NIST), California Bureau of Home Furnishings, and the mattress and upholstered furniture industries met to discuss the development of a surrogate for the standard cigarette ignition source for testing mattresses and upholstered furniture. Regulatory activity in New York State mandating less fire-prone cigarettes and changes in the formulation of non-filter cigarettes currently on the market have prompted the need to identify an alternate cigarette ignition source. A proposed test plan from NIST was discussed. The NIST proposal identifies four possible approaches distinguished as "hot spot, hot rod, traveling hot spot 1, and traveling hot spot 2."

Alternative approaches, including cotton ropes and punk sticks, were described by CPSC Laboratory Sciences staff, see attached slides. Supporting data from studies of heat and rate of burning measurements on current cigarettes and possible surrogates were presented. Based on the testing, it appears that the cotton rope could be a realistic approach. However, further studies and additional discussions regarding the development of the standard ignition source are planned. Based on the CPSC Laboratory's current testing schedule, a follow-up meeting is expected in Fall, 2002.

MFR/PRVLBR NOTIFIED
_____No comments made
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Alternate Smoldering Ignition Sources 6/19/02

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Development of a Surrogate for the Standard Cigarette Ignition Source

Directorate for Laboratory Sciences
U.S. Consumer Product Safety Commission

June, 2002

Approach

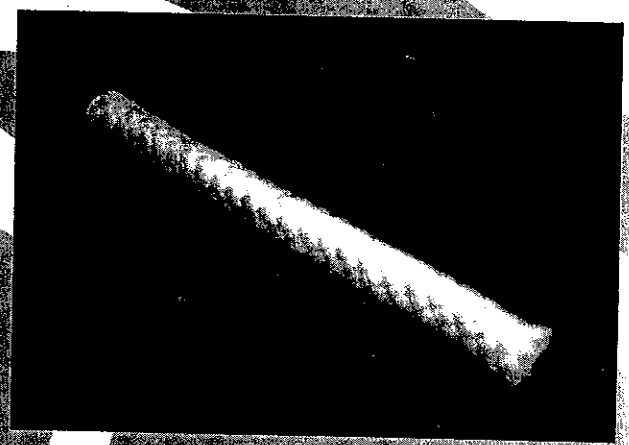
- Characterize burning temperature and rate for standard cigarette, "fire safe" cigarette, and potential surrogate ignition sources
- Test and compare ignition propensity of different ignition sources on different upholstery fabrics using UFAC Fabric Classification Test Method to determine suitable surrogate(s)
- Test ignition performance of surrogate ignition sources on mattresses per 16 CFR 1632

Potential Surrogate Ignition Sources

- Cotton ropes
- Punk sticks
- Electric heaters

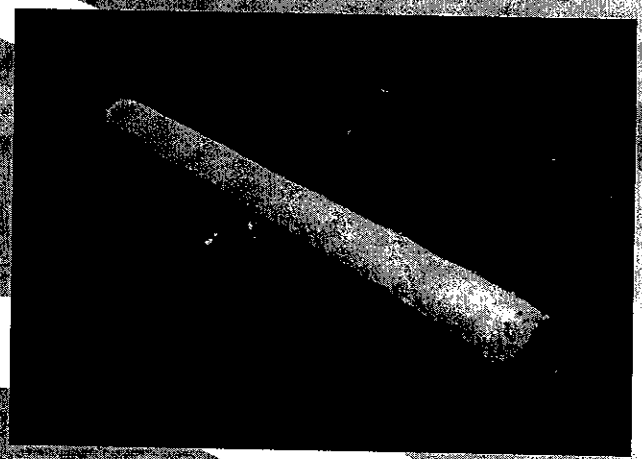
Cotton Rope

- Cheap
- Uniform
- Repeatable
- Commercial specification
- Can keep existing protocol



Punk Sticks

- Cheap
- Can keep existing protocol
- Lack of uniformity/quality
- No current commercial specification



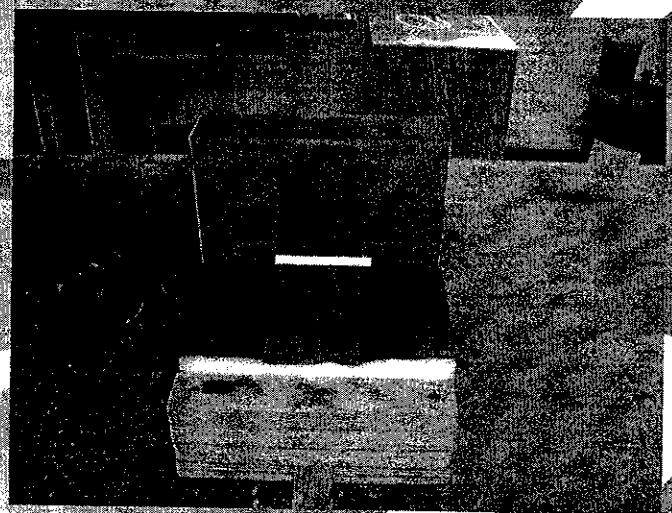
Electric Heaters

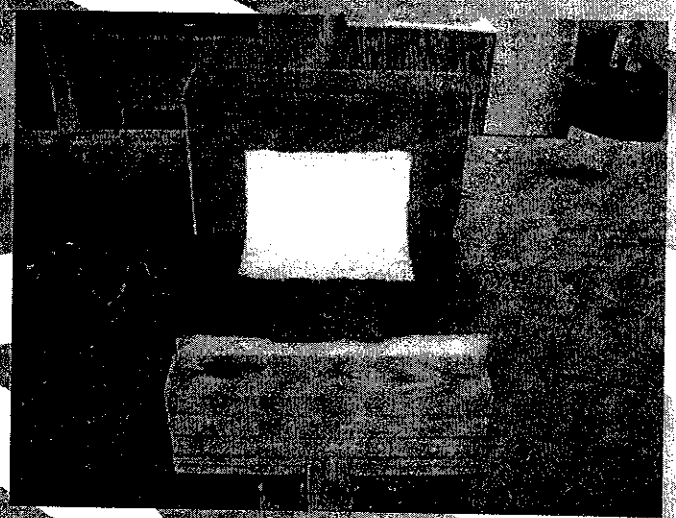
- Repeatability
- Cost
- Practicality
- Time to conduct tests

Upholstery Fabrics - UFAC Testing

- Polyester/rayon/cotton, 10.1 oz/yd^2 (A)
- 100% cotton twill, 11.5 oz/yd^2 (B)
- 100% cotton canvas, 9.5 oz/yd^2 (C)
- 100% cotton denim, 13.0 oz/yd^2 (D)
- 100% cotton twill, 9.5 oz/yd^2 (E)
- Cotton/rayon chenille, 19.8 oz/yd^2 (F)

UFAC Mockups





Burning Temperature and Heat of Combustion

Ignition Source	Temperature (°C)	Heat of Combustion (cal/g)
Standard Cigarette	650-750	3760 for tobacco (from literature)
"Fire Safe" Cigarette	600-640	
Cotton Ropes	610-670	4330 for cotton (from literature)
Punk Sticks	700-750	

UFAC Fabric Classification Tests
(Standard Cigarettes)

	I(Ignition)/ DNI(Did not ignite)	%Foam weight loss
Fabric A	DNI (3/3)	0.49
Fabric B	DNI (3/3)	0.64
Fabric C	I(2)/DNI(4)	1.41
Fabric D	I (6/6)	2.49
Fabric E	I (3/3)	6.27
Fabric F	I (3/3)	12.63

UFAC Fabric Classification Tests (Surrogates)

- Preliminary results indicate cotton rope has potential as surrogate for standard cigarette
- Searching for uniform punk sticks for consistent performance

Future Work

- Complete temperature measurements, UFAC mockup tests, and mattress testing using potential surrogate ignition sources by end of FY02

- Consider heater options, if needed